

AMENDMENTS TO THE CLAIMS

IN THE CLAIMS:

Please amend the claims as follows:

1. (Cancelled)

2. (Currently Amended) An isolated nucleic acid comprising

(a) a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4 and, said amino acid sequence having nicotianamine aminotransferase activity, or

(b) a nucleotide sequence which hybridizes to the nucleotide sequence of (a), when incubated in a solution of 5 x Denhart's solution, 5x SSPE and 0.1% SDS at 65°C for 12 hours, washed once with 6x SSP at 65°C for 10 minutes and washed twice with 2x SSP, 0.1% SDS at 42°C for 10 minutes, said nucleotide sequence comprising a nucleotide sequence of DNA which is amplifiable by polymerase chain reaction on a nucleic acid from a Gramineae plant with the primers represented by SEQ ID NO: 5 and 6, and said nucleotide sequence encoding an amino acid sequence having nicotianamine aminotransferase activity.

3. (Previously Amended) The isolated nucleic acid according to claim 2, which has a nucleotide sequence encoding the amino acid sequence represented by SEQ ID NO: 2 or 4.

4. (Previously Amended) The isolated nucleic acid according to claim 3, which has a nucleotide sequence represented by SEQ ID NO: 1 or 3.

5. (Currently Amended) A plasmid comprising a nucleic acid comprising

(a) a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4 and, said amino acid sequence having nicotianamine aminotransferase activity, or

(b) a nucleotide sequence which hybridizes to the nucleotide sequence of (a), when incubated in a solution of 5 x Denhart's solution, 5x SSPE and 0.1% SDS at 65°C for 12 hours, washed once with 6x SSP at 65°C for 10 minutes and washed twice with 2x SSP, 0.1% SDS at 42°C for 10 minutes, said nucleotide sequence comprising a nucleotide sequence of DNA which is amplifiable by polymerase chain reaction on a nucleic acid from a Gramineae plant with the primers represented by SEQ ID NO: 5 and 6, and said nucleotide sequence encoding an amino acid sequence having nicotianamine aminotransferase activity.

6. (Currently Amended) An expression plasmid comprising:

(1) a promoter that functions in a host cell,

(2) a nucleic acid comprising

(a) a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4 and, said amino

acid sequence having nicotianamine aminotransferase activity, or

(b) a nucleotide sequence which hybridizes to the nucleotide sequence of (a), when incubated in a solution of 5 x Denhart's solution, 5x SSPE and 0.1% SDS at 65°C for 12 hours, washed once with 6x SSP at 65°C for 10 minutes and washed twice with 2x SSP, 0.1% SDS at 42°C for 10 minutes, said nucleotide sequence comprising a nucleotide sequence of DNA which is amplifiable by polymerase chain reaction on a nucleic acid from a Gramineae plant with the primers represented by SEQ ID NO: 5 and 6, and said nucleotide sequence encoding an amino acid sequence having nicotianamine aminotransferase activity, and

(3) a terminator that functions in a host cell, operably linked in the above described order.

7. (Currently Amended) A process for constructing an expression plasmid, which comprises combining:

- (1) a promoter that functions in a host cell,
- (2) a nucleic acid comprising

(a) a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4 and, said amino acid sequence having nicotianamine aminotransferase activity, or

(b) a nucleotide sequence which hybridizes to the

nucleotide sequence of (a), when incubated in a solution of 5 x Denhart's solution, 5x SSPE and 0.1% SDS at 65°C for 12 hours, washed once with 6x SSP at 65°C for 10 minutes and washed twice with 2x SSP, 0.1% SDS at 42°C for 10 minutes, said nucleotide sequence comprising a nucleotide sequence of DNA which is amplifiable by polymerase chain reaction on a nucleic acid from a Gramineae plant with the primers represented by SEQ ID NO: 5 and 6, and said nucleotide sequence encoding an amino acid sequence having nicotianamine aminotransferase activity, and

(3) a terminator that functions in a host cell, operably linked in the above described order.

8. (Currently Amended) A host cell transformed with the plasmid as defined in claim 5, or 6, 22, or 23.

9. (Previously Amended) The host cell according to claim 8, wherein the host cell is a microorganism.

10. (Previously Amended) The host cell according to claim 8, wherein the host cell is a plant cell.

11. (Currently Amended) A process for enhancing iron absorbing ability of a plant cell, which absorbs iron ~~making use~~

of using mugineic acid compound to solubilize the iron, which process comprises

introducing into a plant cell, which absorbs iron [making use of] using mugineic acid compound[s] to solubilize the iron, an expression plasmid formed by combining

(1) a promoter that functions in said cell,

(2) a [nucleic acid] nucleotide sequence comprising

(a) a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4 [and], said amino acid sequence having nicotianamine aminotransferase activity, or

(b) a nucleotide sequence which hybridizes to the nucleotide sequence of (a), when incubated in a solution of 5 x Denhart's solution, 5x SSPE and 0.1% SDS at 65°C for 12 hours, washed once with 6x SSP at 65°C for 10 minutes and washed twice with 2x SSP, 0.1% SDS at 42°C for 10 minutes, said nucleotide sequence comprising a nucleotide sequence of DNA which is amplifiable by polymerase chain reaction on a nucleic acid from a Gramineae plant with the primers represented by SEQ ID NO: 5 and 6, and said nucleotide sequence encoding an amino acid sequence having nicotianamine aminotransferase activity, and

(3) a terminator that functions in said cell,

operably linked in the above described order.

12. Cancelled

13. (Currently Amended) The process according to claim 11, wherein the nucleic acid sequence of the nicotianamine aminotransferase comprises:

(a) a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4 and having nicotianamine aminotransferase activity; or

~~(b) a nucleotide sequence which hybridizes to the nucleotide sequence of (a), when incubated in a solution of 5 x Denhart's solution, 5x SSPE and 0.1% SDS at 65°C for 12 hours, washed once with 6x SSP at 65°C for 10 minutes and washed twice with 2x SSP, 0.1% SDS at 42°C for 10 minutes, said nucleotide sequence encoding an amino acid sequence having nicotianamine aminotransferase activity.~~

14. (Withdrawn) A gene fragment having a partial sequence of the gene as defined in claim 2, 3 or 4.

15. (Withdrawn) The gene fragment according to claim 14, wherein the number of the base is 15 or more and 50 or less.

16. (Withdrawn) The gene fragment according to claim 14, which has the nucleotide sequence represented by SEQ ID NO: 5.

5 17. (Withdrawn) A process for detecting a nicotianamine aminotransferase gene, which comprises detecting from plant gene fragments a nicotianamine aminotransferase gene having a nucleotide sequence encoding an amino acid sequence of an enzyme with the nicotianamine aminotransferase activity or a gene fragment thereof by applying the hybridization method using the gene fragment as defined in claim 14, 15 or 16.

18. (Withdrawn) A process for amplifying a nicotianamine aminotransferase gene, which comprises amplifying a nicotianamine aminotransferase gene having a nucleotide sequence encoding an amino acid sequence of an enzyme with the nicotianamine aminotransferase activity or a gene fragment thereof by applying PCR (polymerase chain reaction) on a plant gene fragment using the gene fragment as defined in claim 14, 15 or 16 as a primer.

19. (Withdrawn) A process for obtaining a nicotianamine aminotransferase gene, which comprises identifying a nicotianamine aminotransferase gene or a gene fragment thereof by the process as defined in claim 17 or 18, and isolating and purifying the identified gene or the gene fragment thereof.

20. (Withdrawn) A nicotianamine aminotransferase gene obtained by the process as defined in claim 19.

21. (Currently Amended) An isolated nucleic acid comprising:

(a) a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4 ~~and, said amino acid sequence~~ having nicotianamine aminotransferase activity, or

(b) a nucleotide sequence which hybridizes to the nucleotide sequence of (a), when incubated in a solution of 5x Denhart's solution, 5x SSPE and 0.1% SDS at 65°C for 12 hours, washed once with 6x SSP at 65°C for 10 minutes and washed twice with 2x SSP, 0.1% SDS at 42°C for 10 minutes, said nucleotide sequence comprising a nucleotide sequence of DNA which is amplifiable by polymerase chain reaction on a nucleic acid from a Gramineae plant with the primers represented by SEQ ID NO: 5 and 6, and said nucleotide sequence encoding an amino acid sequence having nicotianamine aminotransferase activity and said nucleotide sequence comprising at least 600 nucleotides.

22. (New) The plasmid according to claim 5, which comprises a nucleic acid comprising a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4.

23. (New) The expression plasmid according to claim 6, which comprises a nucleic acid comprising a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4.

24. (New) The process according to claim 7, wherein the



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expression plasmid comprises a nucleic acid comprising a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4.